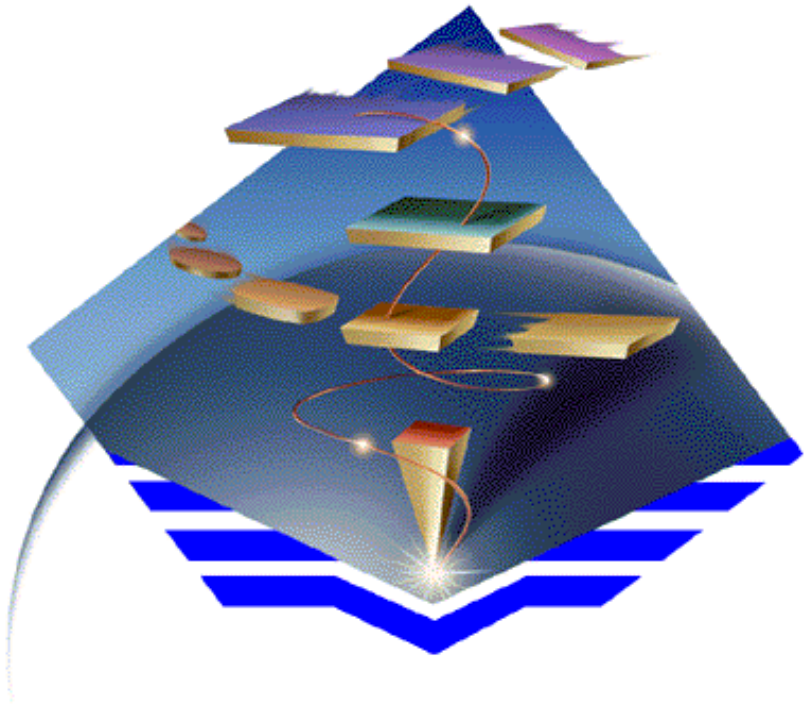
Communications Server for Windows NT

The premiere multifunction gateway for the Windows NT environment



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Abstract: Communications Server for Windows NT

As the newest member of the IBM Communications Server product line, Communications Server for Windows NT provides industry-leading SNA and multiprotocol gateways for TCP/IP and SNA network integration solutions, including Internet-to-SNA connectivity. This industrial strength server incorporates advanced, open technologies such as APPN, DLUR, high performance routing, AnyNet, and TN3270E, delivering ease of use and any-to-any network integration. Communications Server offers unparalleled availability and enterprise class dependability for your mission critical applications.

This presentation answers the question "What is a Communications Server?", overviews Communications Server for Windows NT, looks at solutions for network integration, and concludes by covering application development and support tools.

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Acronyms

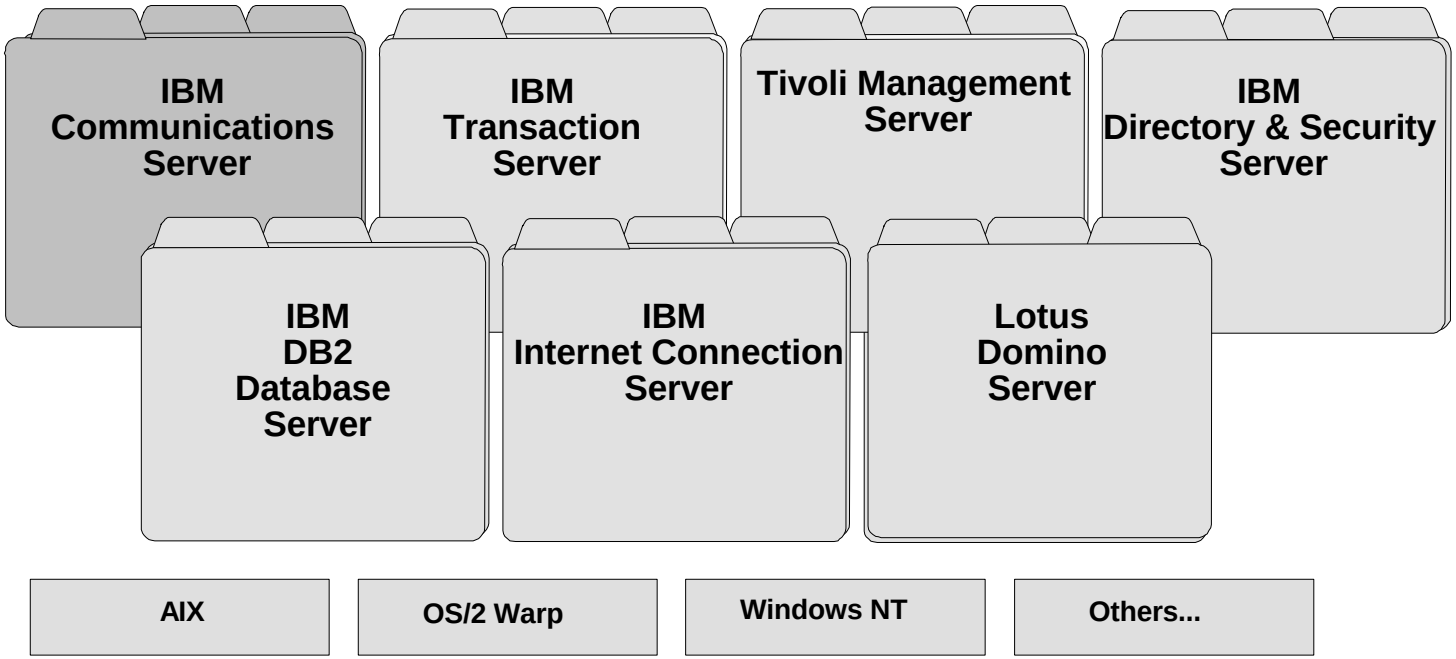
APPC	**Advanced Program to Program Communications**
APPN	**Advanced Peer to Peer Networking**
CICS	**Customer Information Control System**
CM/2	**Communications Manager/2**
CS/2	**Communications Server for OS/2 Warp**
CS/AIX	**Communications Server for AIX**
CS/NT	**Communications Server for Windows NT**
DB2	**DataBase 2**
DLU	**Dependent LU**
DLUR	**Dependent LU Requester**
DLUS	**Dependent LU Server**
FTP	**File Transfer Protocol**
HPR	**High Performance Routing**
LAN	**Local Area Network**
OS/2	**Operating System 2**
PCOMM	**Personal Communications**
SNA	**Systems Network Architecture**
SNMP	**Simple Network Management Protocol**
TCP/IP	**Transmission Control Protocol/Internet Protocol**

Agenda

- **Communications Server Introduction**
  - Advanced Technologies
- **Solutions for Network Integration**
- **Development and Support Tools**
- **Summary**

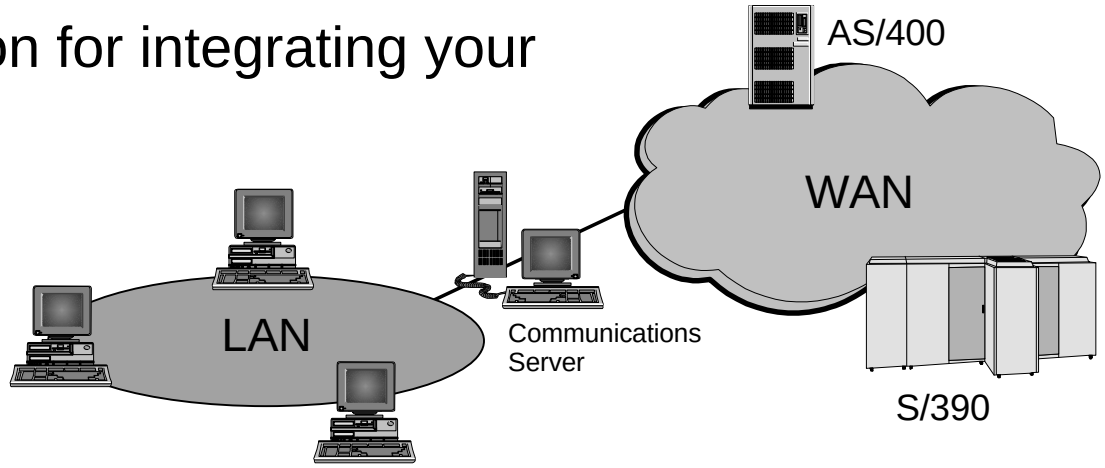
IBM Software Servers

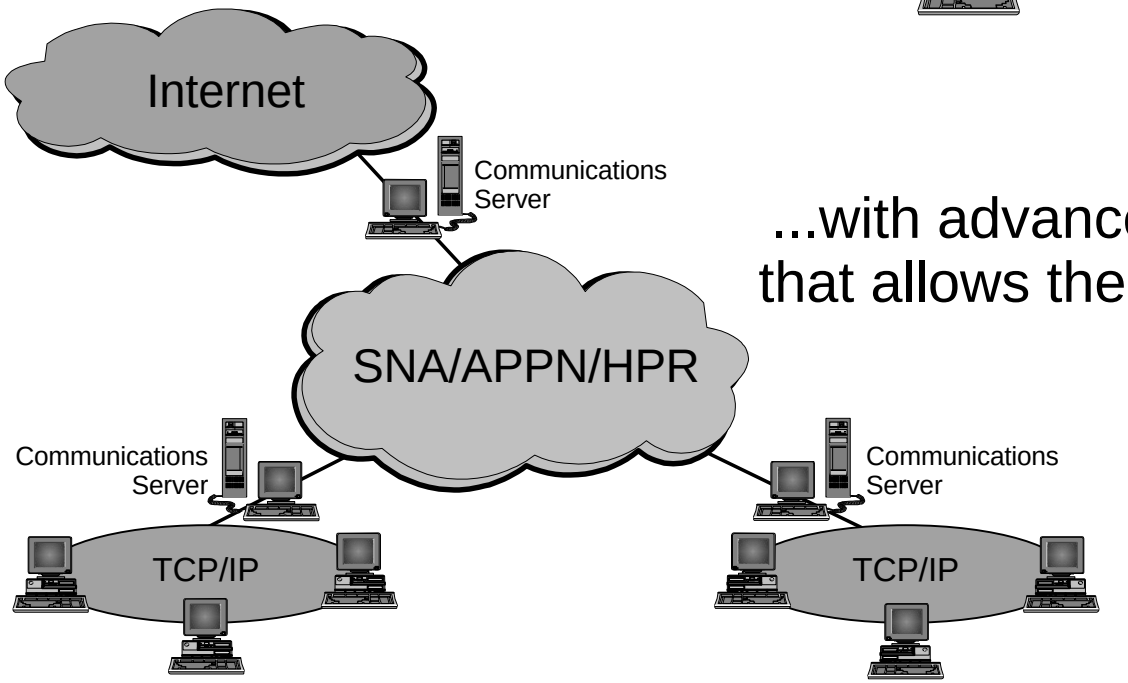
- **The industry's most comprehensive software server family**
  - Seven modular application servers
  - Multiple platforms...the widest choice of operating systems & clients
  - Integration Tested



What is an IBM Communications Server?

The best possible solution for integrating your LANs with your hosts...





...with advanced networking function that allows the integration of different network types

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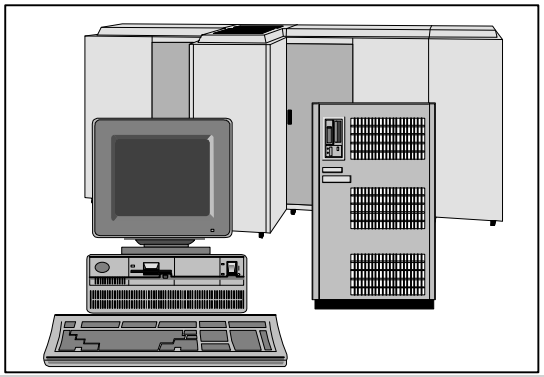
The solution for companies who want to:

- Have the freedom to make application decisions based on business needs, not network protocols
- Connect users to the Intranet or Internet to exploit network computing advances
- Sharpen their competitive edge by developing best-of-breed applications without updating their network or building parallel networks
- Leverage their current investments and run SNA applications over TCP/IP networks and vice versa
- Improve their network's availability, efficiency and performance
- Be positioned for the applications and networks of the future
- Buy from the people that introduced networking

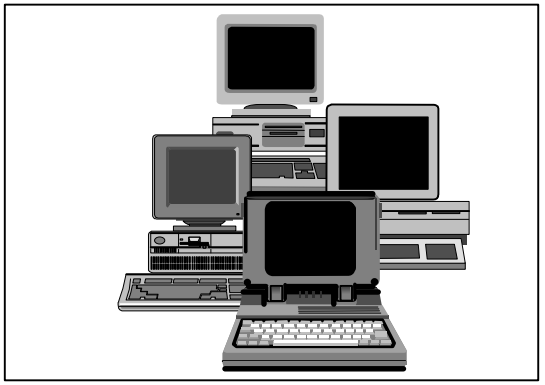
IBM Enterprise Communications Family Software



Servers

Communications Server for OS/390
Communications Server for AIX
- **SNA Client Access for AIX**
- **SNA Application Access for AIX**

Communications Server for OS/2 Warp
Communications Server for NT
NetWare for SAA
NetWare for SAA: AS/400 Edition
Artour Gateway (AIX)
Artour Web Express Server (AIX, OS/2)



Clients

Personal Communications AS/400 and 3270
- **(for OS/2, Win 3.1, Win 95, Win NT)**

Personal Communications AS/400 (for OS/2, Win 3.1, Win 95, Win NT)
CS/2 Access Feature for OS/2
CS/2 Access Feature for Windows
Internet Connection for Windows

Built on Advanced Technologies

- **Allows rapid deployment of advanced business and consumer applications without disrupting existing applications**
- **Supports new users, applications, and mix of TCP/IP and SNA communications without disruptive network upgrades**
- **Provides higher reliability and availability**
- **Simplifies design, installation, and operations**

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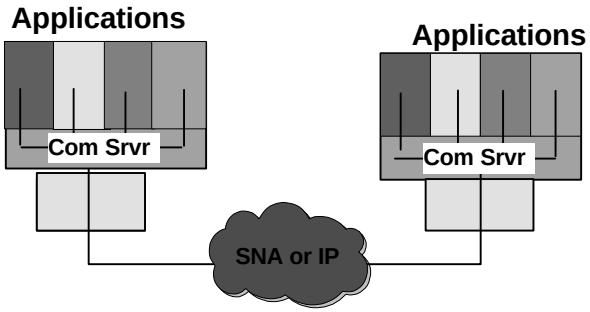
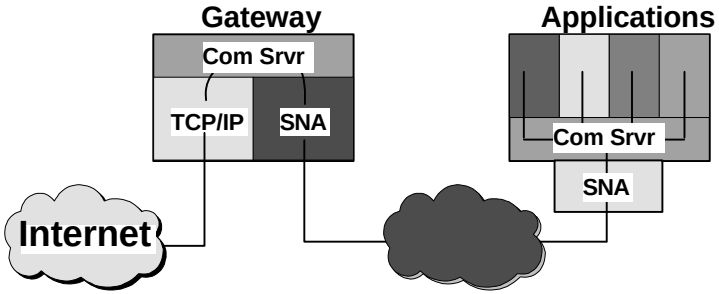
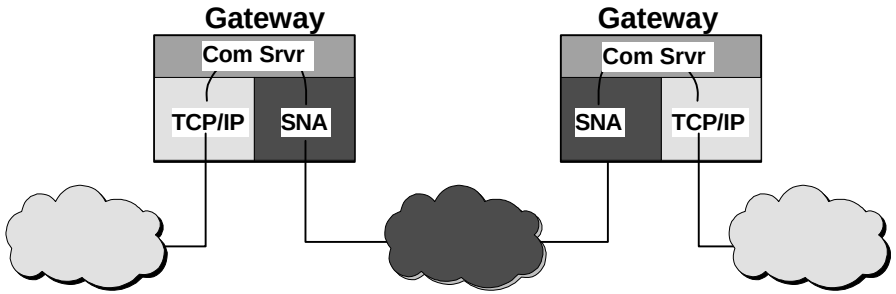
Advanced Multiprotocol Support



Supports nonnative application



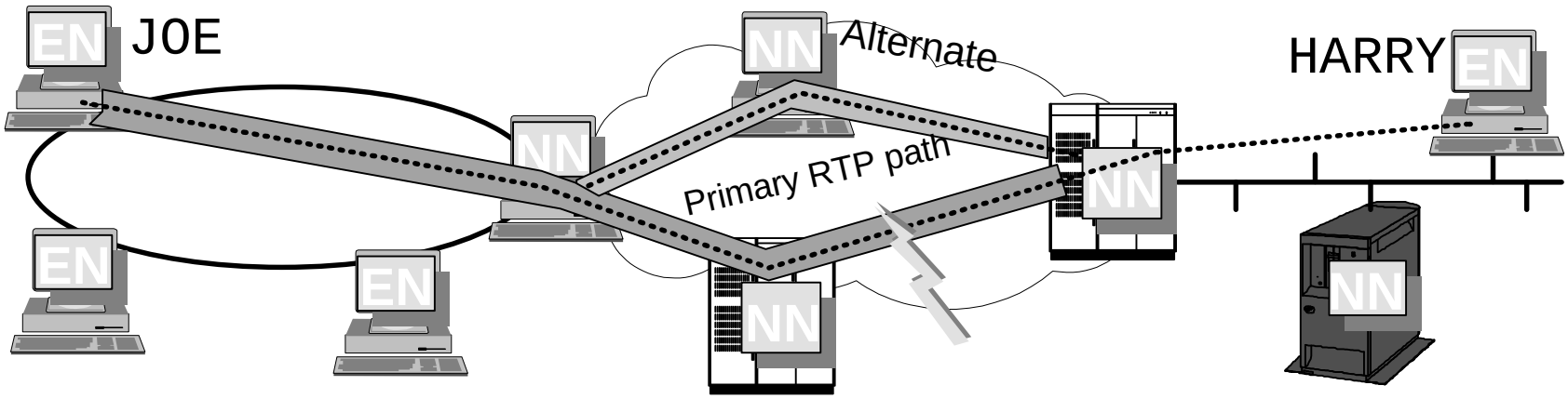
Joins 2 unlike networks



Joins two like networks with unlike backbone

- **Simplifies application selection, network design, and operation**
  - **e.g. Internet access from SNA and IP**
- **Expands application scope and gives end users broader choice of applications**
- **Enhances existing router and controller networks**
- **Award-winning, standards-based, software solution**
  - **Compensates for differences in protocols**
  - **Solutions for SNA, TCP/IP (sockets), NetBIOS, and IPX**

High-Performance Routing



HPR Advantages

- ★ **Better performance with Rapid Transport Protocol (RTP)**
  End-to-end error checking only
- ★ **Lower overhead with Automatic Network Routing (ANR)**
  Source routing reduces storage and increases speed
- ★ **Non-disruptive session rerouting around failures**
  New RTP path recalculated in case of interruption
- ★ **Full APPN (pre-HPR) compatibility**

"HPR is the most efficient and highest level of the protocol stacks..."

Frank Dzubeck, LAN Times, March 1996

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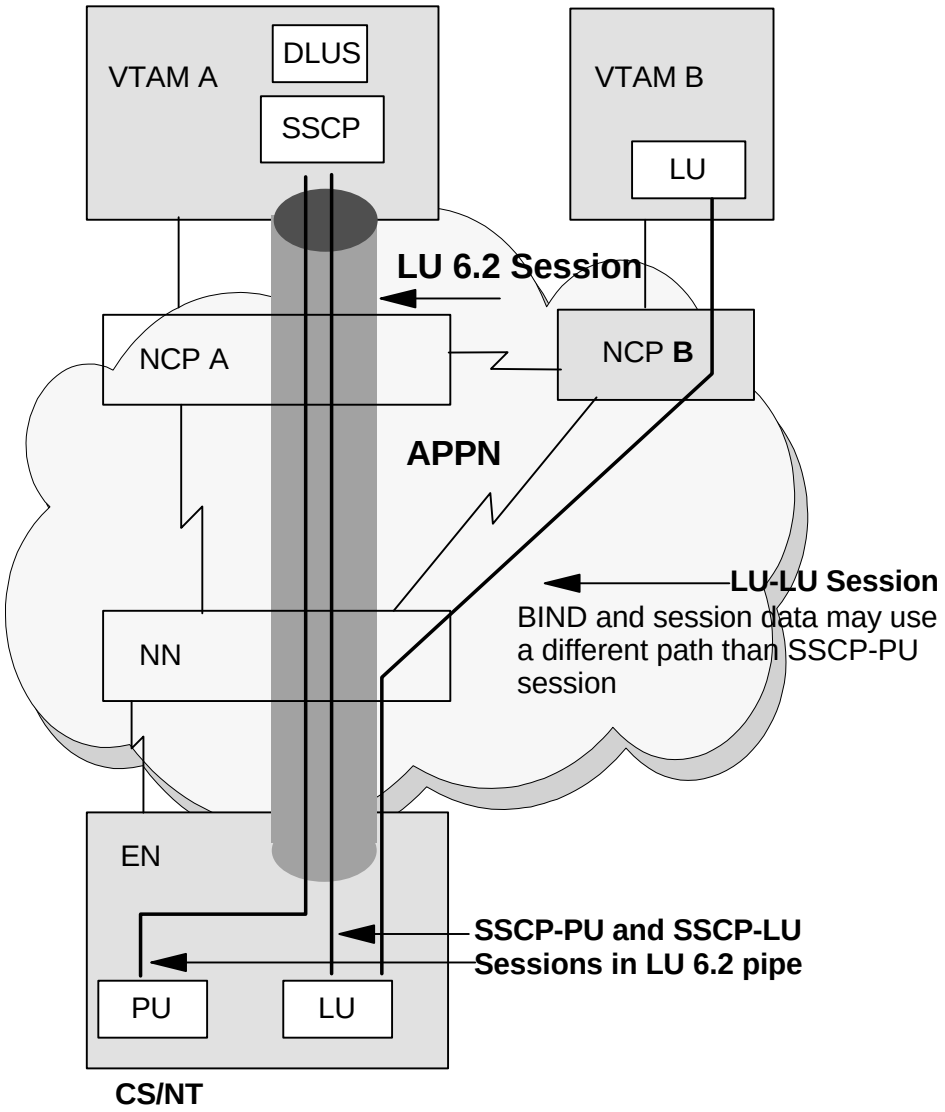
Dependent LU Requester



- **Provides migration strategy for DLU from subarea to APPN**
- **DLUs can reside on nodes that are non-adjacent to the host**
- **APPN search logic used to provide the best path for LU-LU sessions**
- **Network management provided by DLUS and PUs that are not adjacent to SSCP can still be visible to host**
- **With AnyNet, DLU sessions can be established over TCP/IP**
- **Backup DLUS support if connection to primary DLUS fails**
- **Multi-subnet support allows DLUR, DLUS, and application all to be in different subnetworks**

Communications Server Technology Highlights

	CS/2	CS/NT	CS/AIX	OS/400	NetWare	CS/MVS
Industry-leading SNA support:						
3270 SNA gateway	X	X	X	X	X	
APPN EN and NN function	X	X	X	X		X
High Performance routing						
intermediate routing	X	X	X	X		X
HPR connection endpoint	X	X				X
3270 support over APPN (DLUS/R)	X	X	X			X
Multiprotocol support:						
TN3270E server	X	X	X		X	
TN5250 server			X			
Sockets over SNA access node	X	X	X	X		X
APPC over TCP/IP access node	X	X	X	X		X
SNA over TCP/IP access node	X	X				X
Sockets over SNA gateway	X	X	X		X	
APPC over TCP/IP gateway	X	X	X			X
SNA over TCP/IP gateway	X	X				X
IPX over SNA gateway	X				X	
IPX over TCP/IP gateway	X					
NetBIOS over SNA gateway	X					
NetBIOS over TCP/IP gateway	X					
NetWare Directory Services integration					X	

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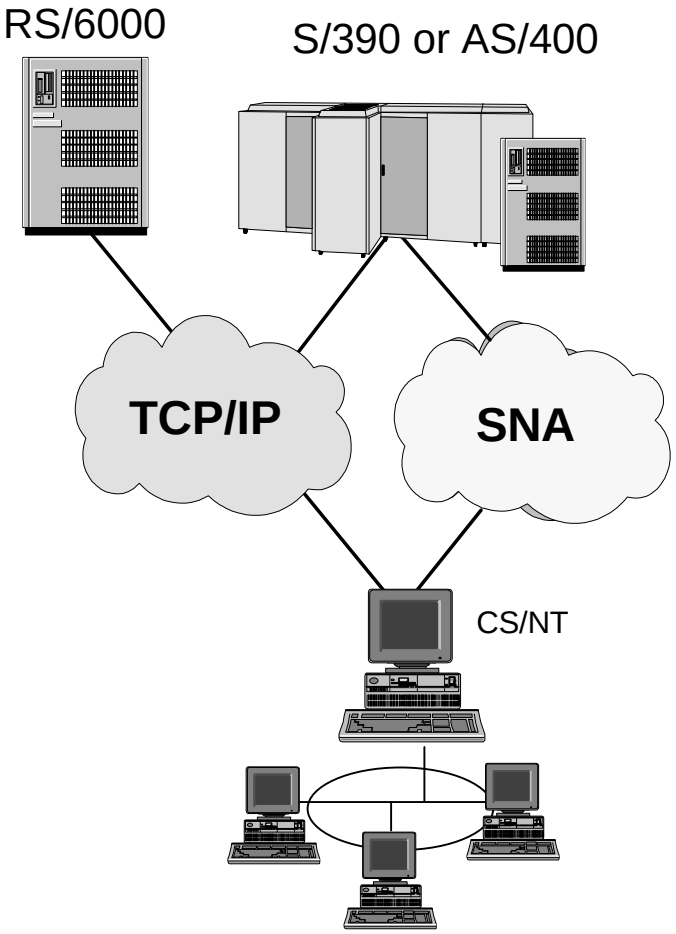
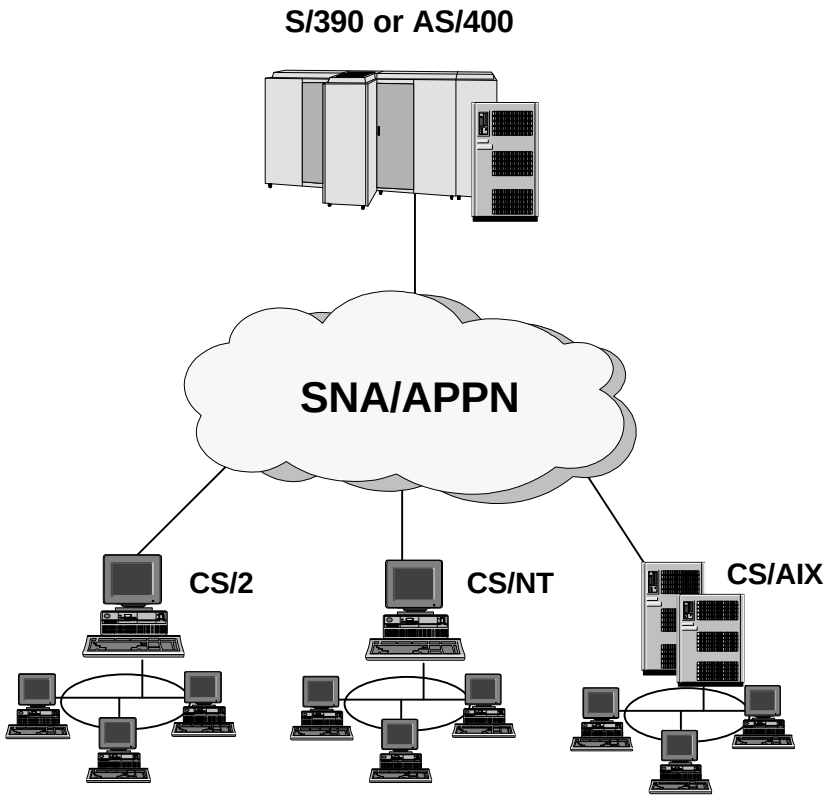
Communications Server for Windows NT Overview

Communications Server for Windows NT



- **Industrial strength communications server**
  - Industry leading SNA, APPN, and HPR functions
  - Unparalleled reliability, performance, and availability for business applications
- **Integrated multiprotocol support**
  - Sockets over SNA and SNA over TCP/IP
  - Easy intranet/Internet deployment without application changes or new hardware
  - TN3270E server
- **Supports wide range of clients**
  - Industry standard TCP/IP or SNA clients
  - SNA API (split stack) clients

Communications Server for Windows NT
SNA Function



Peer Communications Server gateways for SNA clients and 3270 traffic

- **SNA Gateway**
  - Full peer to other Communications Servers
  - Route switching with other platforms
  - Discovery server
  - 3270 support over APPN with DLUR
- **APING, AFTP, APPC3270 support**
- **Wide range of connectivity**
- **APIs**
  - LUA RUI, CPI-C, APPC

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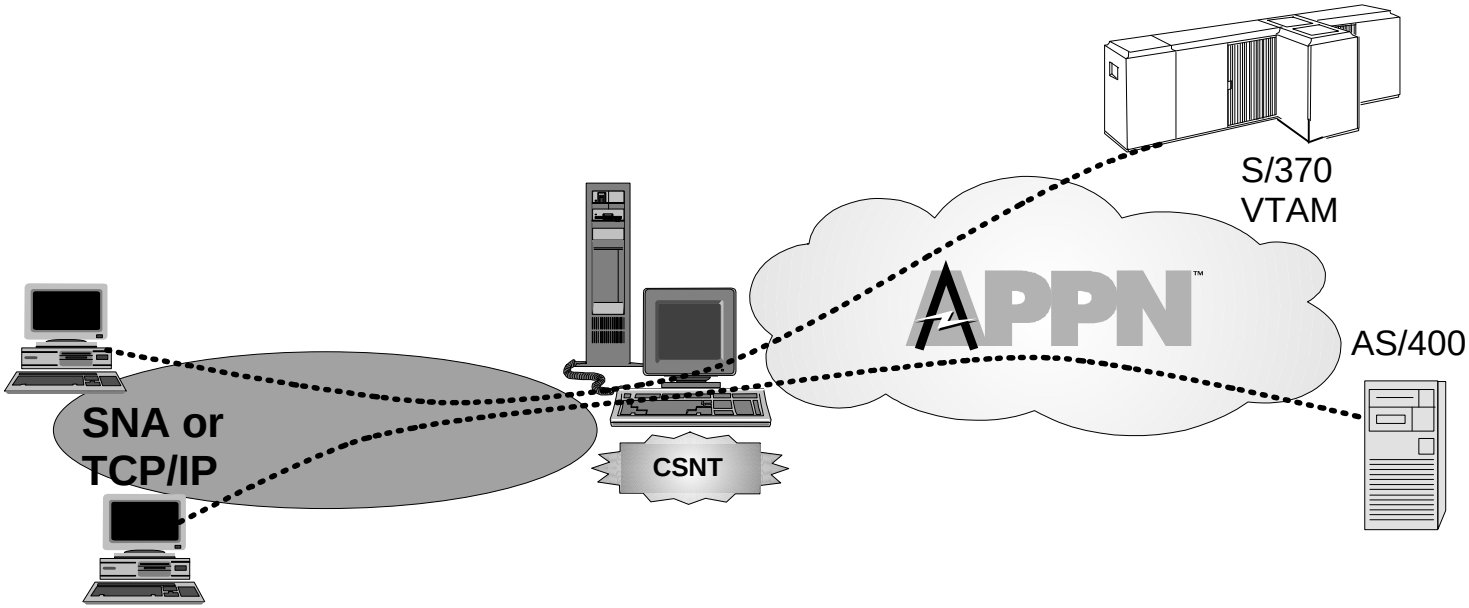
Connectivity



SNA connectivities

- ✓802.2 for LAN (Ethernet, Token Ring, etc.)
- ✓SDLC - point to point and multidrop
- ✓X.25 - including X.32 (IBM, Eicon)
- ✓Asynchronous - SNA-A and AutoSync
- ✓Twinaxial
- ✓Frame Relay (Eicon)
- ✓ISDN (Eicon)
- ✓AnyNet SNA/IP or Sockets/SNA
- ✓Channel attachment (Bus Tech)
- ✓Full SNA with APPN and HPR

New, All-in-one Packaging

- **All product files**
- **Clients for remote SNA API support**
- **Entry PCOMM emulator for server administration**
  - 3270 and 5250 Entry Level Emulation
- **Development tools, APIs, and samples**
- **Complete online documentation**
- **Host On-Demand**
- **Web Adminstration**
- **Remote server administration client**
- **Hot buttons for CS/NT Web pages**

Single CD-ROM for server and client installation
All from one integrated graphic interface

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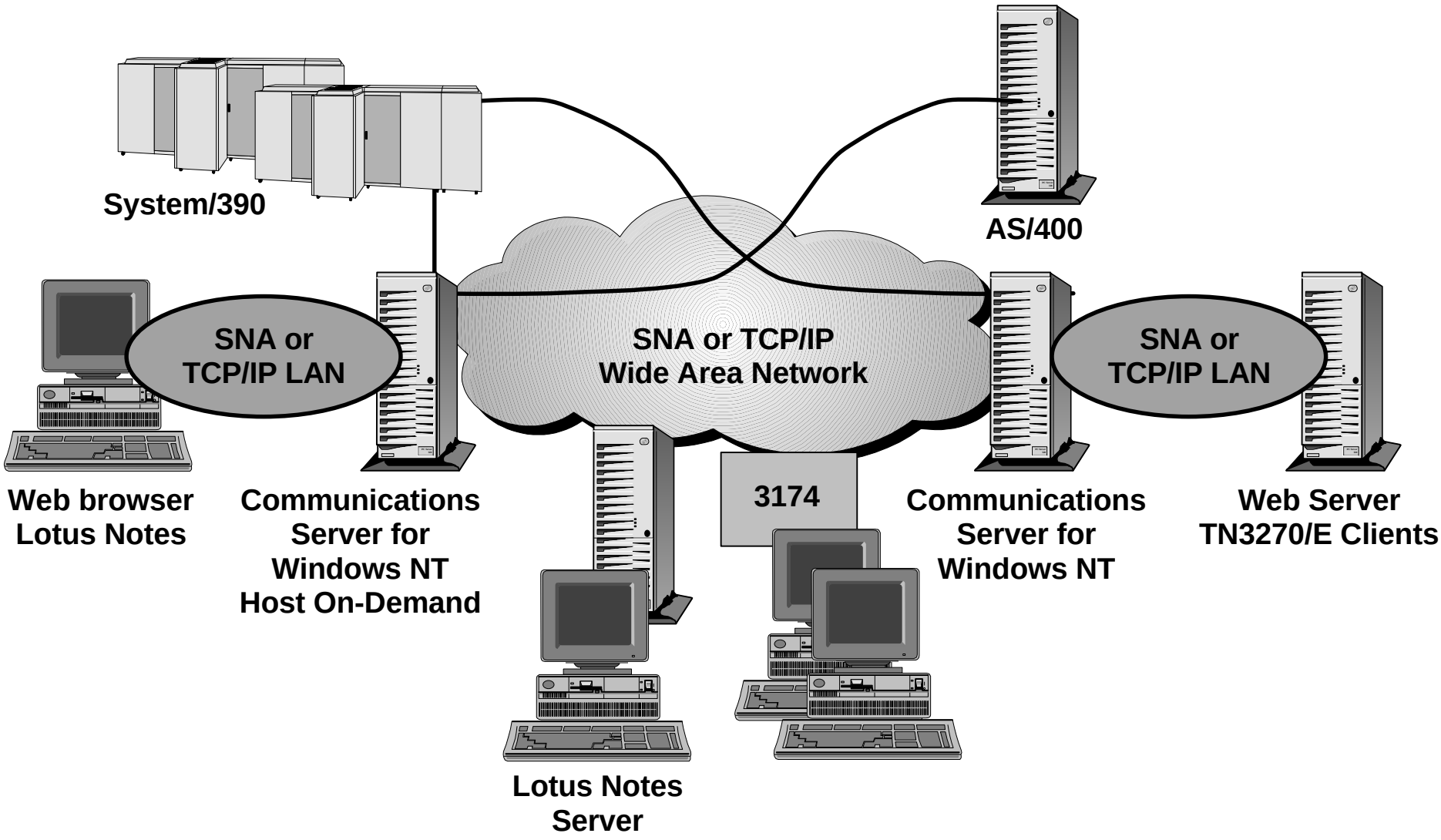
Solutions for Network Integration



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What kind of customer problems are solved with multiprotocol solutions?

My company has merged with another company. We both use different protocols.

How can we streamline communications?

Our SNA clients want to build an intranet and also access the Internet

Can we do this?

Users in our branches want to use Lotus Notes to communicate with each other.

Can we do this with an SNA/APPN central site?

We'd like to consolidate to TCP/IP to simplify management, but we have a huge investment in our host SNA database applications.

Can we consolidate but still access our databases?

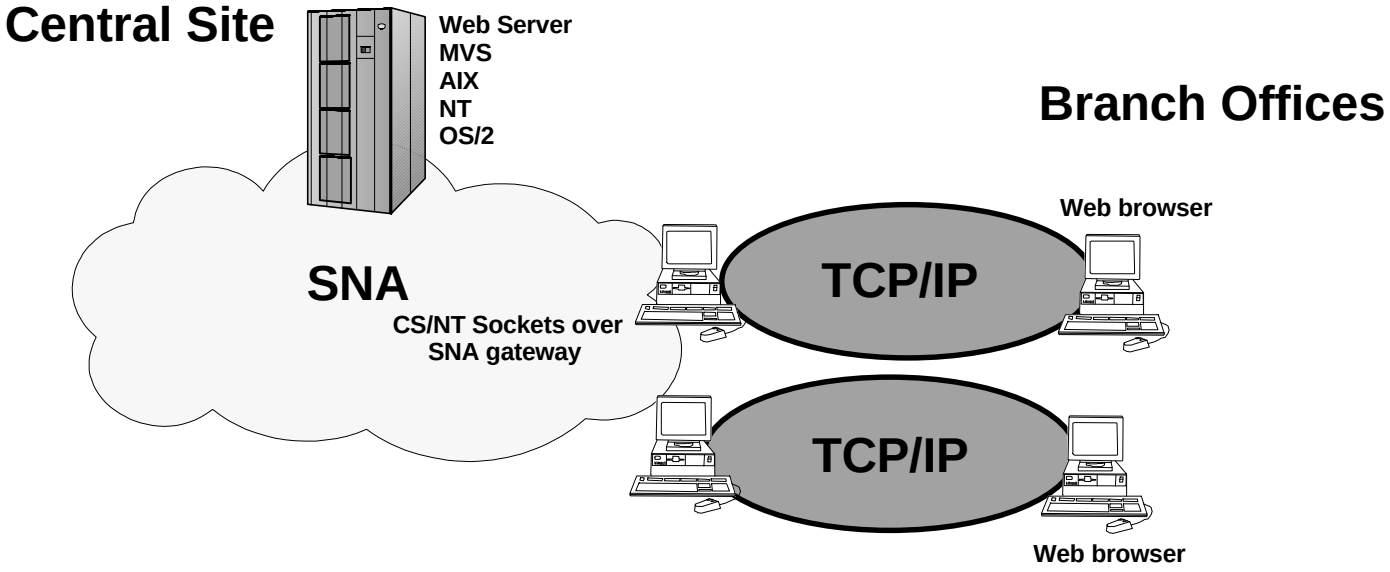
All our retail stores need to access our central site financial systems. We'd like to use SAP R/3 but

Can it be deployed in our SNA backbone environment?

SNA and TCP/IP Network Integration Overview

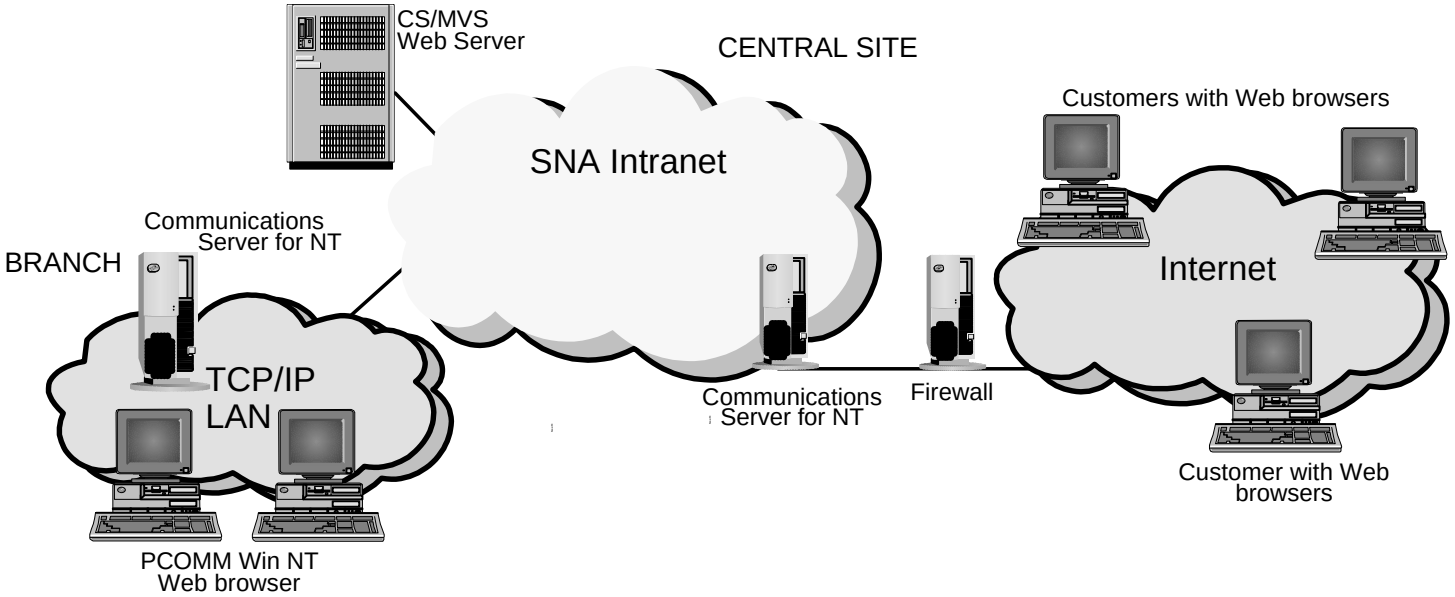
- Sockets over SNA
  - Run TCP/IP sockets applications over SNA networks
  - Intranet and Internet access from SNA or TCP/IP
- SNA over TCP/IP
  - Extend SNA applications over TCP/IP networks
- SNA API Client Support
  - TCP/IP client access to SNA APIs without SNA protocol flows
- TN3270E Server
  - TCP/IP client access to 3270 applications and print services
- Host On-Demand
  - Internet-to-SNA connectivity for Web users needing occasional access to 3270 applications and databases

Enterprise Intranet - Sockets over SNA Gateway



- **Intranet improves and streamlines communications within corporations**
- **Branch users can access Web server in SNA network**
- **Other sockets appls can be used in same configuration: eg. FTP, Telnet, SAP R/3, DCE, SNMP, Lotus Notes**

Transportation Industry - Internet/intranet access using SNA



- **Environment:** Documentation distributed on paper, Customers call service reps to make reservations, Reps at branches use PCOMM and CS/NT to access central site S/390 reservations systems
- **Requirement:** Efficiently distribute documentation to reps
  Reduce transaction time
  Non-disruptive solution
- **Solution:** Use CS/MVS as Web server. Branch CS/NTs enable intranet access. New central site Comm Server allows customers to access pricing information
- **Benefits:** No major networking changes, productivity savings from intranet document distribution
- **Brochure:** G325-5102-01: Use your SNA or APPN network for Internet or intranet access
- **URL:** http://www.raleigh.ibm.com/any/anynew.html

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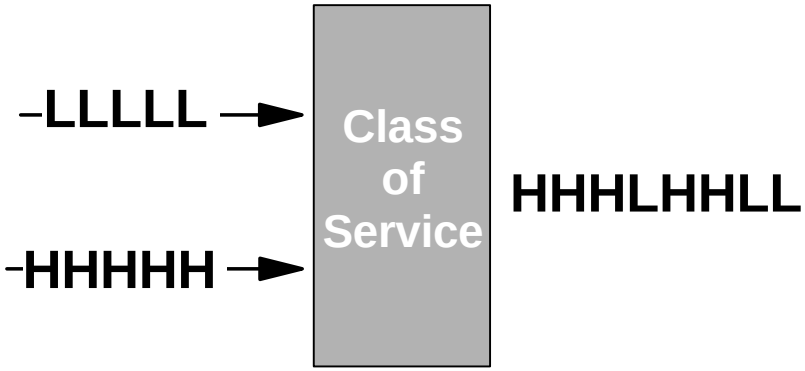
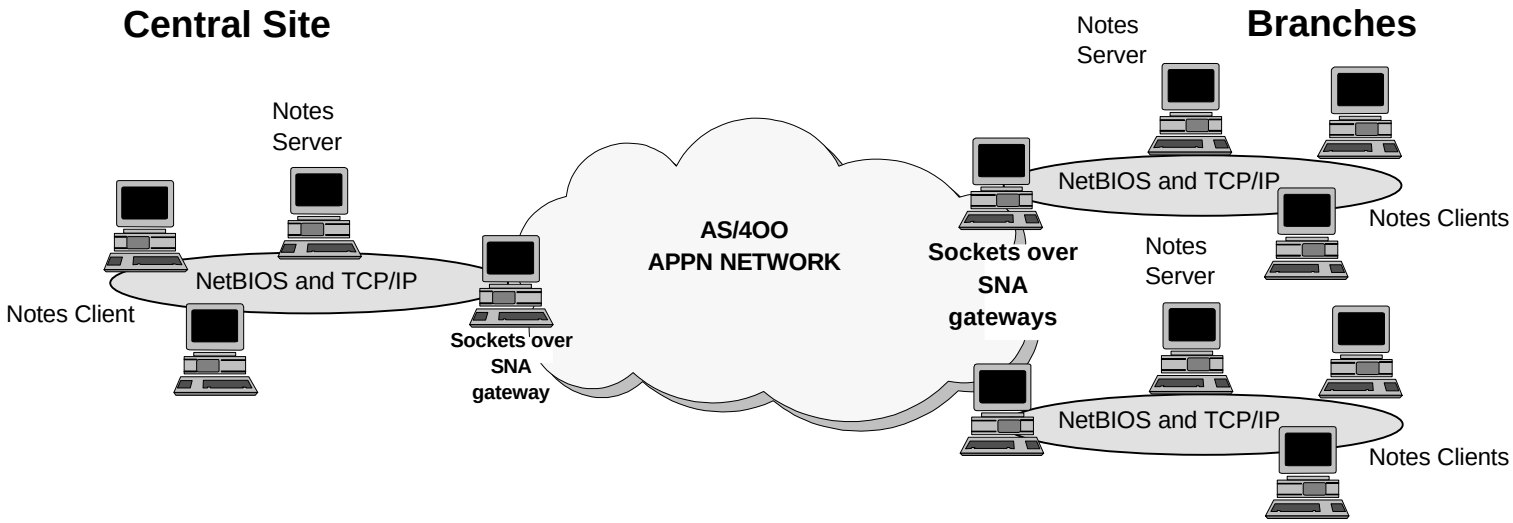
Traffic Prioritization



Minimizes required bandwidth

- **Improves network service and saves money**
  - **Minimizes bandwidth and improves performance**
- **Interactive traffic can be given higher priority than batch traffic**
  - **SNA applications over SNA networks**
  - **TCP/IP applications over SNA networks, e.g.**
    - **Notes over APPN**
    - **SAP R/3 over SNA**
    - **Web browsing over SNA**

Lotus Notes over APPN: Traffic Prioritization



Company: Zahid Tractors and Heavy Machinery Company, Ltd. in Saudi Arabia

Environment: Enterprise wide AS/400 APPN network

Requirement: Replication between Lotus Notes servers between branches using existing leased line SNA network with no impact to existing 5250 traffic

Solution: Branch LAN interconnection using Sockets over SNA gateways in Communications Server #BATCH class of service used for Notes traffic so 5250 traffic is not impacted

Benefits: Freedom to use TCP/IP-based Internet applications while benefitting from SNA/APPN bandwidth utilization, traffic prioritization, etc.
No need to upgrade or disrupt existing network

Application brief: G325-3648

URL: http://www.software.ibm.com/is/sw-servers/communications/cmssuc03.html

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Customer Quotes

"By simply deploying a few gateways with Sockets over SNA multiprotocol function, we Internet enabled our whole SNA community."

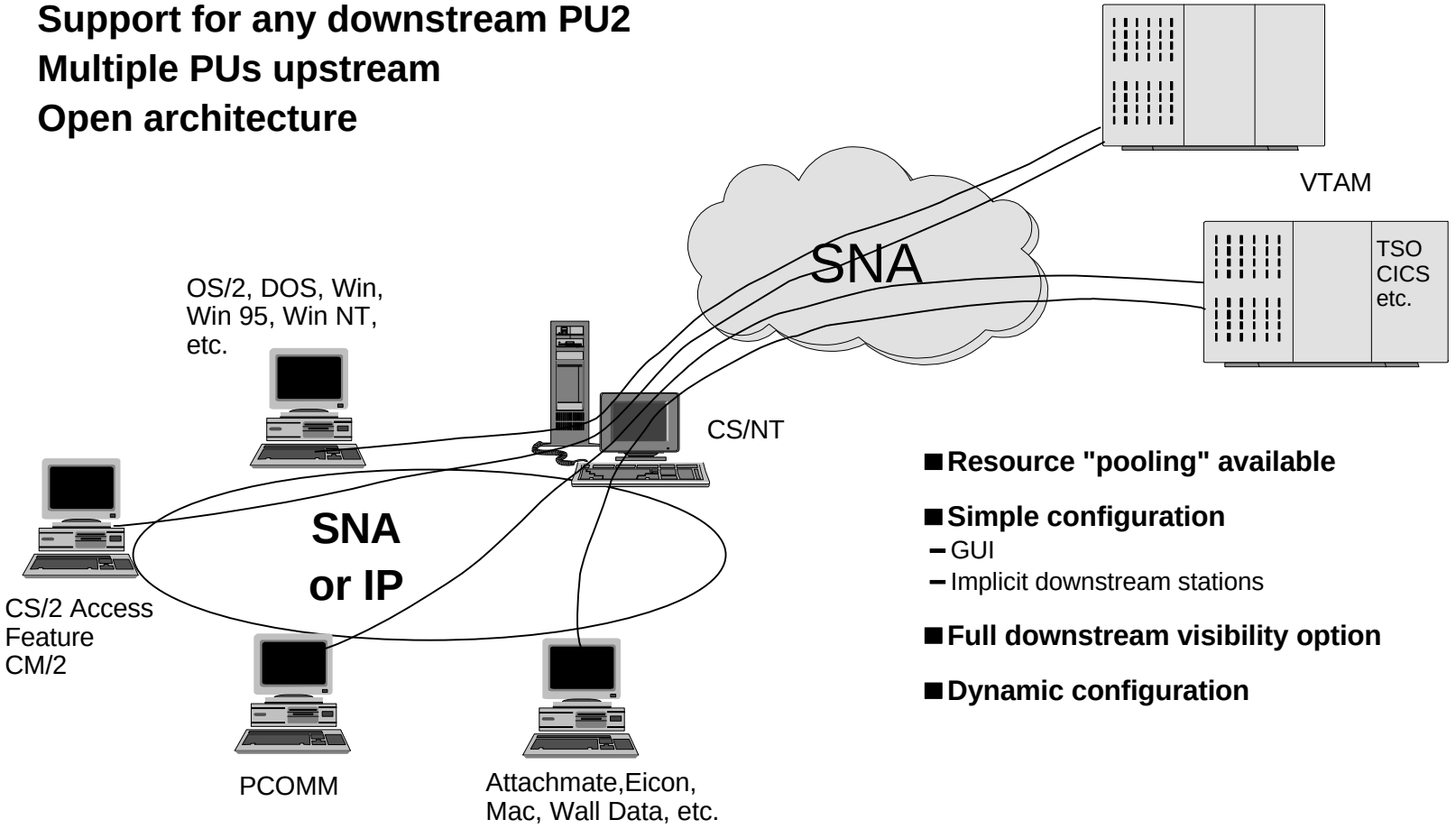
Hussein Tarhini, Technical Support Manager
Zahid Tractors

"I am particularly pleased that IBM can add multiprotocol function to our SNA network in such a non-disruptive manner. We were able to implement the Sockets over SNA gateway software solution within normal business hours without any interruptions to our user community."

Graham Ferguson, Technology Manager
Zahid Tractors and Heavy Machinery

SNA Gateway

Support for any downstream PU2
Multiple PUs upstream
Open architecture



- **Resource "pooling" available**
- **Simple configuration**
  - GUI
  - Implicit downstream stations
- **Full downstream visibility option**
- **Dynamic configuration**

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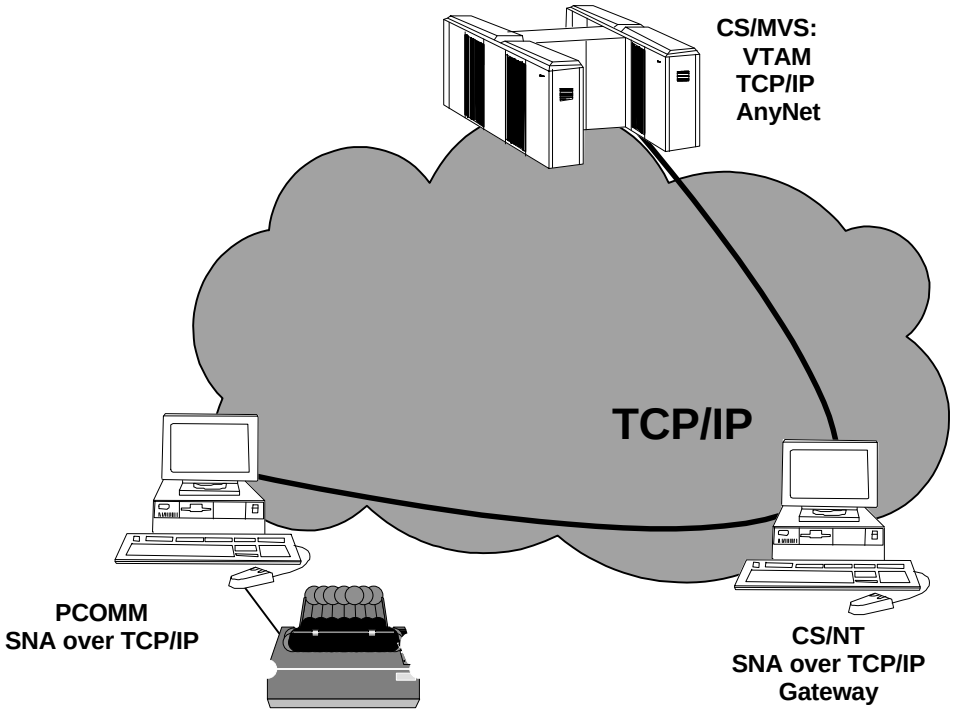
SNA over TCP/IP



- **Broad SNA support over TCP/IP for APPC, printer, and 3270 emulator programs (LU0, 1, 2, 3, 6.2)**
  - DLUS in VTAM SNA/IP access node
  - DLUR in CS/NT
- **Clients can access SNA and TCP/IP applications**
- **Reduces operational and management costs by enabling network consolidation while leveraging investment in SNA applications**

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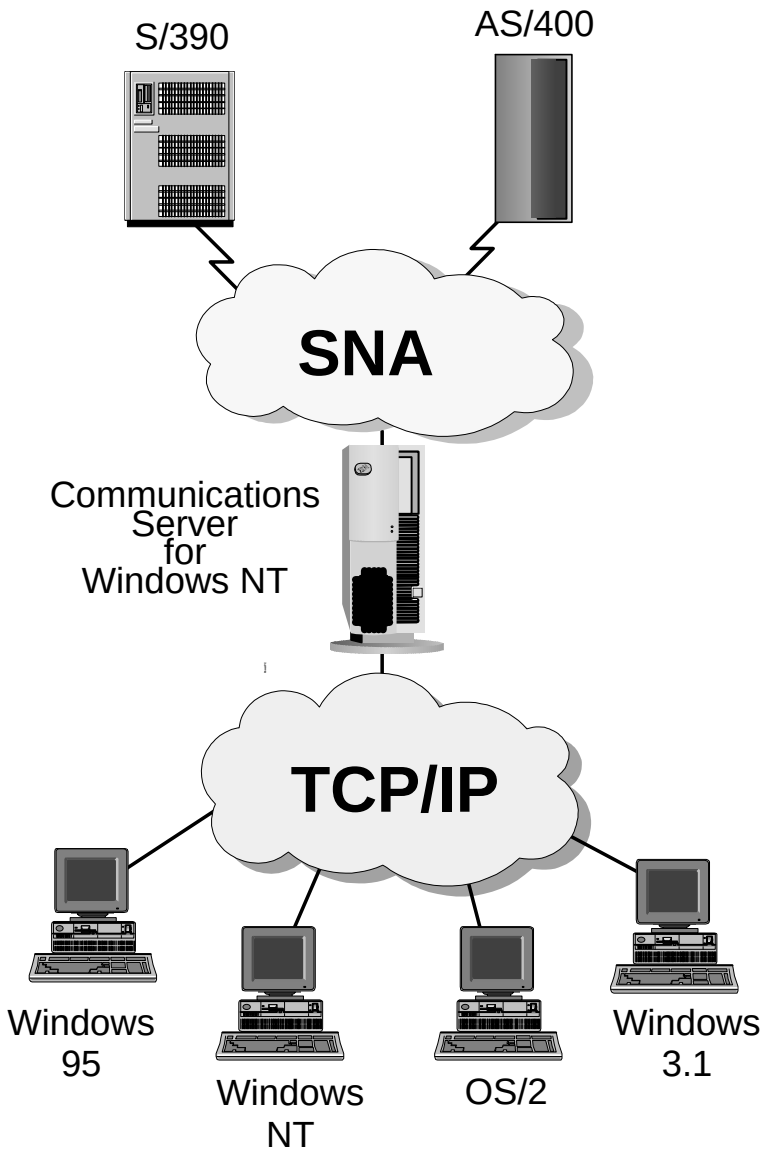
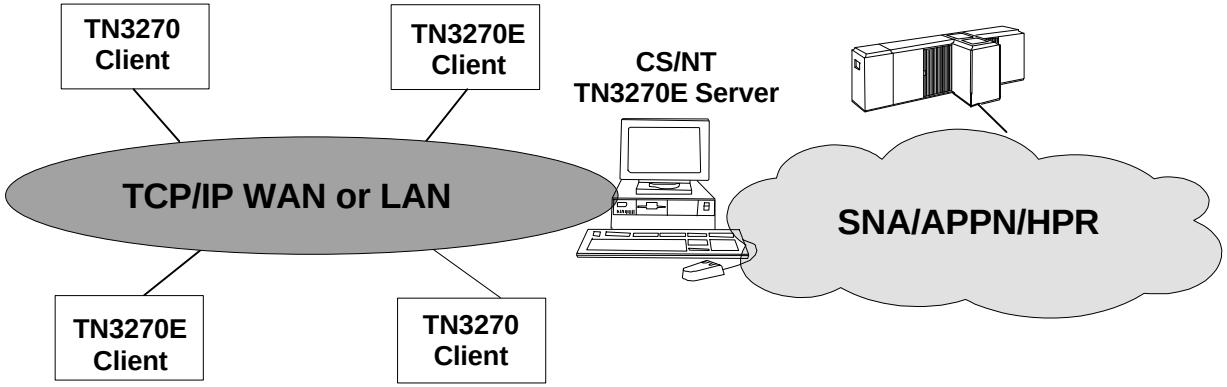
Remote API Client Support (Split Stack)



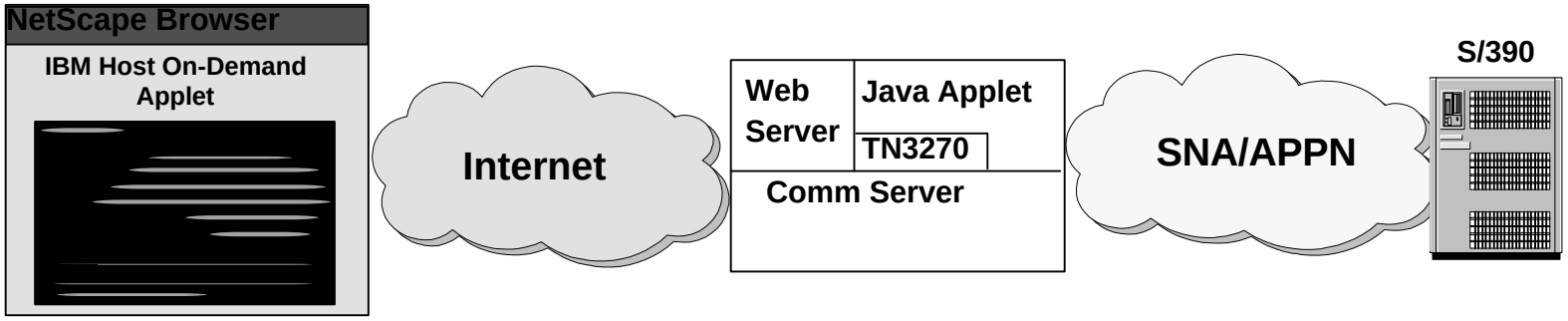
- **Allows TCP/IP attached clients to access SNA APIs without SNA protocol**
- **Supports the following clients**
  - Windows NT
  - Windows 95
  - Windows 3.1
  - OS/2
- **Clients provide API support for**
  - CPI-C APPC
  - EHNAPPC
  - LUA RUI
- **Clients shipped with server**
- **Client requires less storage and processing capability**

TN327OE Server



- **Easy access from IP clients to 3270 applications and print services**
  - No IP on host
  - No SNA on workstations
  - HPR-capable from gateway to host with non-disruptive sessions
- **Supports traditional TN3270, RFC1646, RFC1647**
  - LU1, LU2, and LU3 devices
  - Print services
  - ATTN, SYSREQ keys
  - SNA response handling
- **Can be placed in remote branches or channel attached to host**

Host On-Demand - Internet to SNA Solution



- **Provides fast and easy access to host 3270 SNA applications from intranets and Internet**
- **Java-based solution that uses TN3270 protocols**
- **Provides high-performance, low-cost solution for intranet and Web users who need occasional access to central site applications or databases**
- **Available to Communications Servers:**
  - CS/2 4.1, CS/AIX 4.2, NetWare for SAA V2.2, CS/NT
- **http://www.raleigh.ibm.com/hex/hexprod_en.html**
- **Host On-Demand client software in Netscape Communicator Professional Edition**

Development and Support Tools

- Sophisticated programming interface supporting a rich set of 32-bit APIs including:
  - CPI-C
  - APPC
  - Conventional LU Application Interface (LUA) RUI
- Tools and advanced tutorials to simplify configuration and systems management
- Web-based server administration through an easy-to-use graphical interface

Construct your applications on a solid base

- **APPC and CPI-C**
  - Industrial strength client-server LU6.2 applications between all platforms
- **LUA**
  - Low level programming for LU 0, 1, 2, 3
- **Kernel**
  - Interface for controlling CS/NT components
- **System Management(NOF)**
  - SNA system resource administration
- **Common Services**
  - Common functions such as translation, traces, message logging, etc.

* APIs are free

Pre-requisite Hardware and Software

Communications Server for Windows NT

- **Hardware**
  - Will run on hardware required by MS Windows NT Server
  - Recommendation: Intel Pentium, 100 MHz CPU, 32 MB of RAM, 75 MB of hard disk
  - Ultimately, hardware required will depend on network environment and may be greater than recommendation
- **Software**
  - MS Windows NT Server, either
  - MS Windows NT Server 3.5.1 (Service Pack 4 or above is required for split stack operation)
  - MS Windows NT Server 4.0
  - MS TCP/IP (SNA API clients)

Remote Admin Client Pre-Reqs

- **Hardware**
  - Will run on hardware required by MS Windows NT
- **Software**
  - MS Windows NT Workstation or Server
  - MS Windows NT Server 3.5.1
  - MS Windows NT Server 4.0

SNA API Clients Pre-Reqs

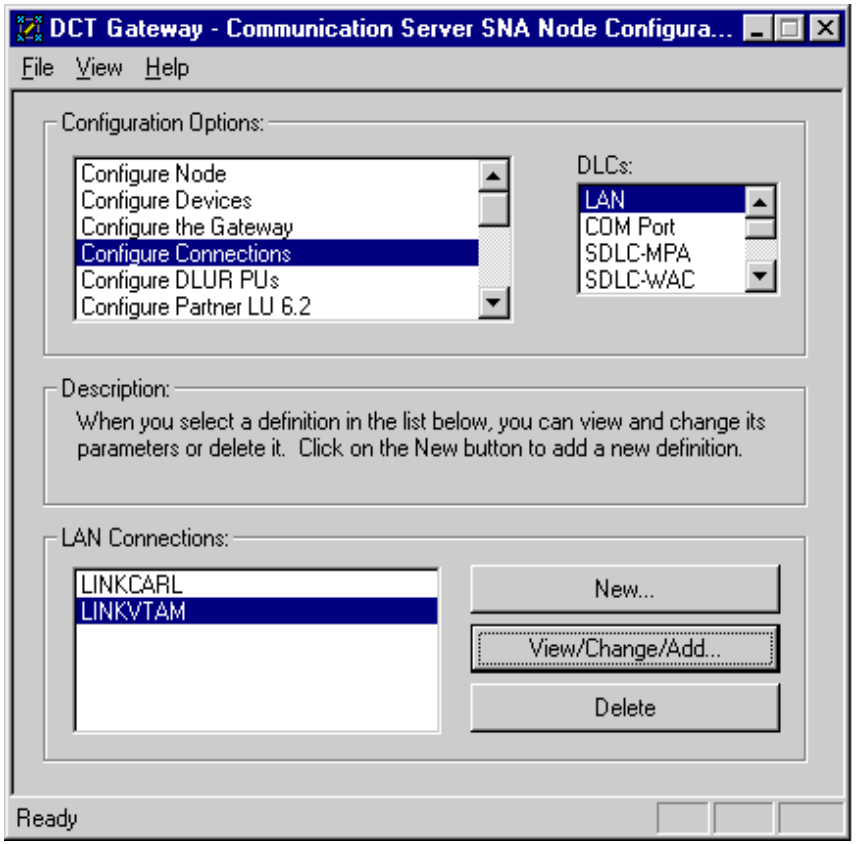
- **Hardware**
  - Will run on hardware required by base operating system
- **Software**
  - OS/2 3.0 (Warp) or above
  - MS Windows 3.1.1 or above and TCP/IP
  - MS Windows 95 with service packs 1 & FIX Q128336
  - MS Windows NT Workstation or server
  - MS Windows NT Server 3.5.1 with Service Pack 4 or above
  - MS Windows NT Server 4.0

Install Considerations

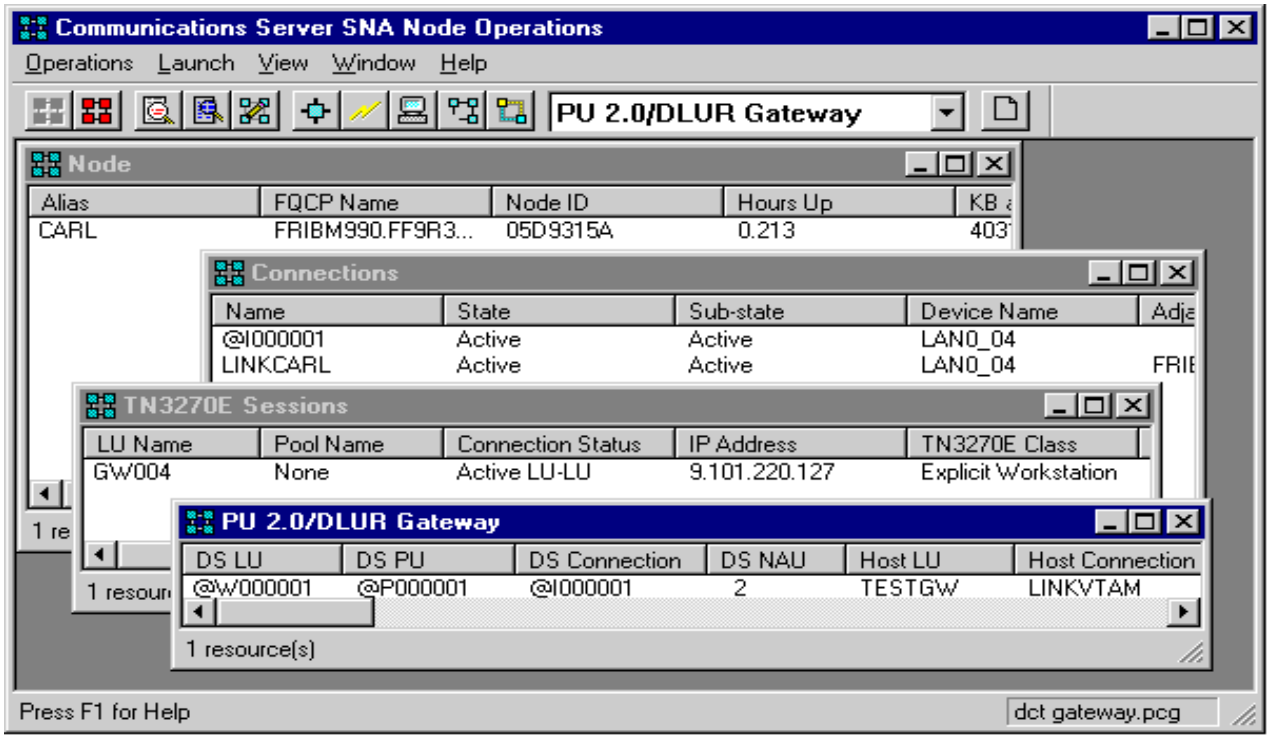
- **Before Installing**
  - Must have Windows NT Administrator user ID with local authority
  - Requires Intel based computer running Windows NT Server 3.5.1 or 4.0
- **Beginning Installation**
  - Close other applications that are running
  - Communications server should be installed prior to installing PCOMM (including entry-level emulation). If already installed, remove it.
  - Uninstall any version of Communications Server for Windows NT already installed

Configuration

- InstallShield standard
  - InstallShield silent support for automatic installation
- Configuration with Wizards
- Complete customization
  - ASCII configuration file
- SNA Discovery protocol for easy client configuration



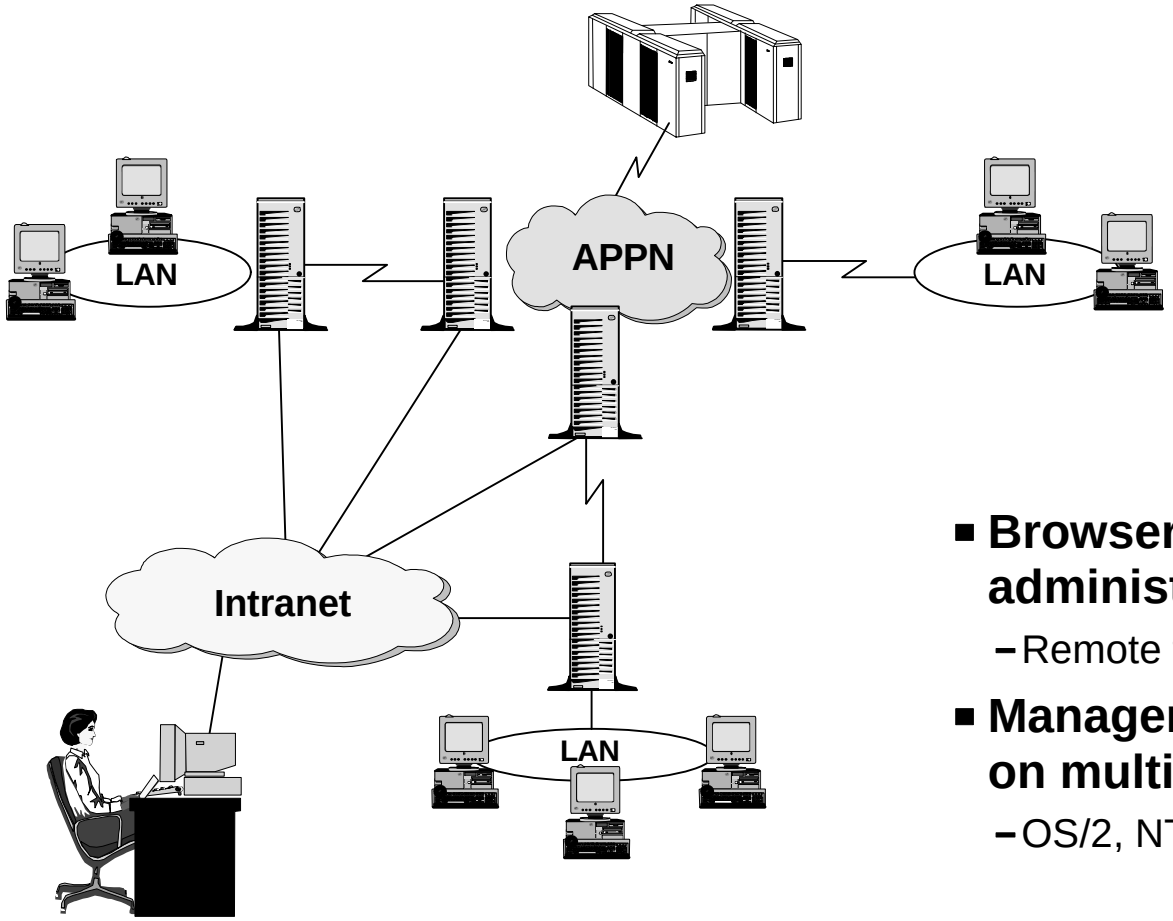
Administration



- ★ **Simple Multiple Document Interface management interface**
- ★ **Full support for NetView**
- ★ **Remote administration facility**
- ★ **Complete online documentation**

IBM Software

Web Based Administration



- **Browser based administration**
  - Remote from any workstation
- **Management of Servers on multiple platforms**
  - OS/2, NT, NetWare

IBM Software

Summary

Communications Server for Windows NT:

- The premier multifunction gateway for the NT environment

Key product advantages:

- Reduces costs by enabling network consolidation
- Mission critical provider of end-to-end solutions
- Better ease of use and any-to-any network integration
- IBM's excellence in service and support

For more info...

Cross Platform	**IBM Pub Number**
– Communications Server Family Brochure	G325-5207
– Communications Server Spec Sheet	G325-3565
– Use your SNA network for Internet access	G325-5102
– Integrate SAP R/3 into your SNA or APPN network	G325-3650
Windows NT	
– Communications Server for Windows NT	G325-3684
– 10 Reasons to Buy Communications Server for Windows NT	G325-3683

Home Page: http://www. networking.ibm.com/csn/csnprod.html